

Such an amendment should also remove the rejection of Claims 1-16 under 35 U.S.C. § 102(e) as being anticipated by Bellantone et al. since patentee fails to teach or fairly suggest the same antimicrobials as now claimed.

The Office has further rejected all of the Claims (1-17) under 35 U.S.C. § 103(a) as being unpatentable over Oku et al. in view of Deith. Applicants respectfully disagree with the basis of this rejection primarily because there is no proper motivation, short of improper hindsight reconstruction of Applicants' own teachings, to combine the teachings of these references in order to produce Applicants' claimed invention. Specifically, Oku et al. is concerned with certain high-temperature glazes for ceramic products comprising certain silver-based antimicrobials. Applicants have shown that such high temperatures are detrimental to the function of the now-claimed silver-based antimicrobials within finished ceramic products as produced by Oku et al.'s exemplified procedures. Thus, something different is required in terms of processing to permit incorporation of proper functioning silver-based antimicrobials as now claimed within, for example, ceramic substrate surface glazes. Deith simply teaches that a sol-gel glaze (which is applied at a low temperature) is desirable for the protection of ceramics that include certain colored or metallic decorative accoutrements (such as for fine china with colored or metallic patterns)(see page 1, line 19- page 2, line 16, as one of numerous examples), not to mention the ability to prevent loss of lead from certain colors utilized as colorations for such fine china articles (page 2, lines 23-24). There is no discussion within Deith, however, of the importance or absolute need for low temperatures to be utilized for improvements in ceramic glazes; to the contrary, the important issue within this reference is that a sol-gel (which happens

to be applied at low temperatures) be employed to provide the needed protection of such decorative accoutrements within and on Deith's disclosed decorated fine china articles, particularly when subjected to harsh dishwashing conditions. The Oku et al. patent fails to mention any problems with, not to mention any actual application of, decorative colors or metallic patterns to their disclosed articles anywhere within its four corners. Furthermore, patentees specify the end-uses for such ceramic products as noticeably non-colored or non-metallically decorated commodes, bath tubs, wash basins, water tanks, etc. Deith, again, specifies that the main problem with retention of fine china decorative accoutrements occurs during exposure to the harsh conditions associated with standard dishwashing (alkalinity, temperature, and velocity of water/detergent mix)(page 2, lines 9-13). Oku et al.'s listed end-use items are neither generally colored/decorated in the same fashion as Deith's described fine china articles nor generally subjected to the same harsh dishwashing conditions described as the problematic reasons within Deith for the need for sol-gel applications of glazes to Deith's fine china products. Thus, there simply is no reason for the ordinarily skilled artisan to have reviewed Deith's teachings for any suggestion that a sol-gel application of a silver-based antimicrobial-containing glaze would overcome any problems (which are not described or even alluded to within Oku et al.) with Oku et al.'s high-temperature glazes.

Taking the standard for combining references as set forth in In re Oetiker, 24 USPQ2d 1443, 1447 (Fed. Ct. 1992), there is no showing that a person of ordinary skill, seeking to solve any problems associated with Oku et al.'s ceramic articles, would reasonably be expected or motivated to look to colored/metallic decorated fine china articles for any such improvements.


There are no decorative accoutrements to protect within Oku et al.; there are no harsh dishwashing conditions that affect anything within Oku et al.'s disclosed ceramic glazes; there are no lead-containing colorants that require protection from migration or leaching therefrom within Oku et al. Thus, where is the motivation for combining these two references not to mention for the ordinarily skilled artisan to decide that the low-temperature sol-gel applications of Deith would be proper for Oku et al.'s high temperature applications? There has to be some valid reason for the ordinarily skilled artisan to decide that a sol-gel application is necessary from a combined review of both references for such a combination to be proper. Deith is not involved in remedying the same problems as either Applicant or Oku et al. Thus, the standard within In re Oetiker has not been met due to the non-analogous nature of the two references. Hence, the only basis for such a combination of references, and thus the only basis for the rejection currently applied to the pending claims, is clearly based upon improper hindsight reconstruction of Applicants' own teachings. Reconsideration and withdrawal of this rejection are therefore respectfully requested.

**CONCLUSION**

In view of all of the previous arguments, it is respectfully submitted that the pending claims are now in condition for allowance and it is requested that this application be passed on to issue.

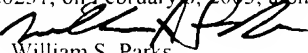
Respectfully submitted,

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**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, Washington, DC 20231, on February 6, 2003, along with a postcard receipt.

  
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## MARKED-UP VERSION OF AMENDMENTS TO 10/027,433

IN THE CLAIMS:

1.(Amended) A method of producing an antimicrobial hard surface substrate comprising the steps of

- a) providing a hard surface substrate;
  - b) providing a sol-gel precursor formulation comprising a host precursor component and at least one metal-containing antimicrobial agent selected from the group consisting of metal-containing ion-exchange compounds, metal-containing zeolites, metal-containing glasses, and any mixtures thereof;
  - c) compounding said sol-gel film precursor formulation to produce an adhesive sol-gel coating composition;
  - d) applying said sol-gel coating composition to at least a portion of said hard surface substrate; and
  - e) exposing said sol-gel coated hard surface substrate to a temperature of at most about 800°C to form a finished sol-gel film-coated hard surface substrate,
- wherein said finished substrate exhibits a log kill rate for *Klebsiella pneumoniae* of at least 0.5 as measured under a modified plate contact method being JIS Z2801:2000 utilizing a phosphate buffer solution.

8. The method of Claim [6] 1 wherein said host precursor is selected from the group consisting of TMOS, TEOS, aluminum acetylacetonate, titanium acetylacetonate, zirconium acetylacetonate, and any mixtures thereof.

17.(Amended) The method of Claim [3] 1 wherein said metal-containing antimicrobial agent is a silver-containing ion-exchange compound.